ABSTRACTS

OF

THE PAPERS

COMMUNICATED TO

THE ROYAL SOCIETY OF LONDON,

From 1843 *to* 1850 *inclusive.*

LIBRARY
UNIVERSITY OF OKLAHOMA

VOL. V.

1843 *to* 1850.

PRINTED, BY ORDER OF THE PRESIDENT AND COUNCIL,
From the Journal Book of the Society.

LONDON:
PRINTED BY RICHARD TAYLOR, RED LION COURT, FLEET STREET.
MDCCCLI.

LIBRARY
UNIVERSITY OF OKLAHOMA

UNIVERSITY OF OKLAHOMA
LIBRARY

Q
41
.L7
V.5

CONTENTS.

VOL. V.

1843.

Magnetic Term Observations at Prague, for May, June, July and August, 1843. By Professor Kreil ..... *page* 475

Variations de la Déclinaison et de l'Intensité Magnétique observées à Milan le 26 et 27 Mai, le 21 et 22 Juin, le 19 et 20 Juillet, le 25 et 26 Août, le 20 et 21 Septembre, le 18 et 19 Octobre, 1843. By Sig. F. Carlini, For. Mem. R.S. 475

An Account of a remarkably large and luminous Spot in the Sea. By Captain F. Eardley Wilmot, F.R.S. With remarks on the water taken thence: in a letter to S. H. Christie, Sec. R.S., from Lieut. Manley Dixon, R.A. 475

On a sudden rise and fall of the Sea in the Dock-yard Creek, Malta, on the 21st and 25th June, 1843. By S. Napier, Esq., Master-Attendant 495

Researches into the Structure and Development of a newly-discovered Parasitic Animalcule of the Human Skin, the *Entozoon folliculorum*. By Erasmus Wilson, Esq., Lecturer on Anatomy and Physiology in the Middlesex Hospital 495

Miscellaneous Observations on Animal Heat. By John Davy, M.D. F.R.S. 496

On the Thermal Changes accompanying Basic Substitutions. By Thomas Andrews, M.D. M.R.I.A., Professor of Chemistry in the Royal Belfast Institution 497

1844.

An Account of a slight Shock of an Earthquake felt in the Channel Islands. By S. Elliott Hoskins, M.D. F.R.S.: in a Letter to P. M. Roget, M.D. Sec. R.S. &c. 498

On a new Method of Analysis. By George Boole, Esq. 499

A Description of an extensive Series of the Water Battery; with an

42480

Hist. of Science

account of some Experiments made in order to test the relation of electrical and chemical action which takes place before and after completion of the Voltaic Circuit. By John P. Gassiot, Esq. F.R.S. ..... *page* 500

Some further Observations and Experiments illustrative of the Cause of the Ascent and continued Motion of the Sap, in continuation of a Paper presented to the Royal Society in November 1842. By G. Rainey, Esq. 502

On the Temperature of the Springs, Wells and Rivers of India and Egypt, and of the Sea and Table Lands within the Tropics; with a few Remarks on M. Boussingault's mode of ascertaining the mean temperature of Equinoctial Regions. By Lieut. Newbold, of the Madras Army, F.R.S. 502

On the Electrolysis of Secondary Compounds. By John Frederic Daniell, Esq. D.C.L. For. Sec. R.S., and Professor of Chemistry in King's College, London; and W. A. Miller, M.D., Demonstrator of Chemistry in the same College 504

A description of certain Belemnites, preserved with a great proportion of their soft parts, in the Oxford clay at Christian Malford, Wilts. By Richard Owen, Esq. F.R.S. &c., Hunterian Professor of Anatomy and Physiology in the Royal College of Surgeons..... 505

Note in addition to Mr. Gassiot's paper on the 'Water Battery'..... 507

On the production of Ozone by Chemical Means. By Professor Schœnbein, in a letter to Michael Faraday, Esq. D.C.L. F.R.S. ... 507

Contributions to Terrestrial Magnetism.—No. VI. By Lieut.-Colonel Sabine, R.A. F.R.S. 507

On the production of Ozone by Chemical Means. By C. F. Schœnbein, Professor of Chemistry at Basle, in a second letter to Michael Faraday, Esq. D.C.L. F.R.S..... 508

On the existence of Phosphoric Acid in Rocks of igneous origin. By George Fownes, Esq. Ph.D., Chemical Lecturer in the Middlesex Hospital Medical School 508

Ranges of the Barometer and Sympiesometer on board H.M.S. 'Alfred,' in the River Plate, between the 1st of July and the 31st of December, 1843 509

Remarks on the amalgamation of Silver Ores in Mexico; with an account of some new combinations of Copper, Oxygen and Chlorine. By John Christian Bowring, Esq. 509

Experimental evidence in support of the secretion of Carbon by animals. By Robert Rigg, Esq. F.R.S. 509

On the Hyssop of Scripture. By J. F. Royle, M D. F.R.S. &c. 510

On the Measurement of Distances by the Telescope. By Edmund Bowman, Esq. C.E. 510

An Account of some Experiments exhibiting new instances of the Absorbing Power of Streams; with a few remarks on the Pulsation of Jets. By Mr. G. Robinson 510

Meteorological Register kept at the Master-Attendant's Office, Trincomalee, between the 1st of September, 1843, and the 29th of February, 1844. By Joseph Higgs, Master Attendant..... 511

On the supposed Properties of the Electric and Magnetic Fluids. By W. F. Stevenson, Esq. F.R.S. .....*page* 511

De l'Education des Animaux ; faisant suite à l'ouvrage publié en 1842, et qui a pour titre Essai sur l'Education des Animaux. Par St. Léonard de Lille, Membre de diverses Sociétés scientifiques, et de l'Athénée des Arts de Paris, et son Employé des Finances. Première partie de l'Institut et de l'Intelligence, Education et Civilisation 511

On the Action of the Sun's Rays on Lithic Acid. By John Davy, M.D. F.R.S. Lond. and Edinb..... 512

An Account of the Newtonian Dial presented to the Royal Society, in a letter to the President. By the Rev. Charles Turnor, F.R.S. ... 513

On the Non-coincidence of the Focus of the Photogenic Rays with that of the Visual Rays of the Solar Spectrum. By M. A. Claudet 513

Observations on some of the Nebulæ. By the Earl of Rosse, F.R.S.. 513

On the Structure of the Ultimate Fibril of the Muscle of Animal Life. By Erasmus Wilson, Esq., Lecturer on Anatomy and Physiology in the Middlesex Hospital; in a Letter addressed to Peter Mark Roget, M.D., Sec. R.S. 514

On the Comparative Anatomy of the Thyroid Gland. By John Simon, Esq., Assistant Surgeon to King's College Hospital, and Demonstrator of Anatomy in King's College 515

On the Resolution of Numerical Equations. By Joseph Agar, M.D., Fellow of the Royal College of Physicians 515

On the Reproduction of lost parts in Myriapoda and Insecta. By George Newport, Esq. F.R.C.S., President of the Entomological Society of London, and Corresponding Member of the Philomathic Society of Paris 516

On the Changes of Temperature produced by the Rarefaction and Condensation of Air. By James Prescott Joule, Esq. 517

On the Laws of the Tides on the Coast of Ireland, as inferred from an extensive series of observations made in connexion with the Ordnance Survey of Ireland. By George Biddell Airy, Esq. F.R.S., Astronomer Royal 539

1845.

On the Liquefaction and Solidification of Bodies generally existing as Gases. By Michael Faraday, Esq. F.R.S. D.C.L. &c..... 540

Observations de la Déclinaison et de l'Intensité Horizontales Magnétiques observées à Milan pendant vingt-quatre heures consécutives le 29 et 30 de Décembre 1844. Par M. Carlini..... 542

Remarks having reference to the Earthquake felt in Demerara on the morning of the 30th of August 1844. By Daniel Blair, Esq., Colonial Surgeon of British Guiana 542

An Account of the artificial formation of a Vegeto-alkali. By George Fownes, Esq., Chemical Lecturer in the Medical School of the Middlesex Hospital 542

On a new Bleaching Principle produced by the slow Combustion of Æther in Atmospheric Air, and by the rapid Combustion of Bodies

in a Jet of Hydrogen Gas. By C. F. Schœnbein, Professor of Chemistry in the University of Basle, &c.....*page* 543

On the Structure and Development of the Blood.—First Series. The development of the Blood-Corpuscle in Insects and other Invertebrata, and its comparison with that of Man and the Vertebrata. By George Newport, Esq. F.R.C.S., President of the Entomological Society, &c. 544

Ἀμόρφωτα, No. I. On a case of Superficial Colour presented by a Homogeneous Liquid internally colourless. By Sir John Frederick William Herschel, Bart. F.R.S. &c..... 547

Additional Remarks respecting the Condensation of Gases. By Michael Faraday, Esq. F.R.S. &c. 547

Postscript to the Paper by Sir John F. W. Herschel, Bart. F.R.S., read at the last meeting..... 547

An Account of Compact Aluminum. By Professor F. Wöhler of Göttingen, in a Letter to Thomas Graham, Esq. 548

Essays on Hygrometry and Barometry. By Captain Shortrede, F.R.A.S., First Assistant in the General Trigonometrical Survey of India..... 548

Ἀμόρφωτα, No. II. On the Epipolic Dispersion of Light; being a Supplement to a paper entitled "On a case of Superficial Colour presented by a Homogeneous Liquid internally colourless." By Sir John Frederick William Herschel, Bart. F.R.S. &c. 549

Description of a Self-registering Thermometer. By Mr. Mansfield Harrison 550

On the Viscous Theory of Glacier Motion.—Part I. containing Experiments on the Flow of Plastic Bodies, and Observations on the Phenomena of Lava Streams. By James D. Forbes, Esq. F.R.S. Lond. and Edin., Corresponding Member of the Institute of France, and Professor of Natural Philosophy in the University of Edinburgh 550

Memoir on the Rotation of Crops, and on the Quantity of Inorganic Matters abstracted from the Soil by various plants under different circumstances. By Charles G. B. Daubeny, M.D. F.R.S., Professor of Rural Economy, &c. in the University of Oxford..... 551

On the Ashes of Wheat. By William Sharp, Esq. F.R.S. 554

On Benzoline, a new organic Salt-base obtained from Oil of Bitter Almonds. By George Fownes, Esq. F.R.S. 555

Electro-Physiological Researches.—Memoir First. By Professor Carlo Matteucci 555

On the Connexion between the Winds of the St. Lawrence and the Movements of the Barometer. By William Kelly, M.D., Surgeon R.N., attached to the Naval Surveying Party on the River St. Lawrence 556

On the Elliptic Polarization of Light by reflexion from Metallic Surfaces. By the Rev. Baden Powell, M.A. F.R.S., Savilian Professor of Geometry in the University of Oxford..... 557

On the Gas Voltaic Battery. Voltaic Action of Phosphorus, Sulphur, and Hydrocarbons. By William Robert Grove, Esq. M.A. F.R.S.

V.P.R.I., Professor of Experimental Philosophy at the London Institution ..... *page* 557

The Blood-Corpuscle considered in its different phases of development in the Animal Series. By Thomas Wharton Jones, Esq. F.R.S., Lecturer on Anatomy, Physiology and Pathology, at the Charing Cross Hospital 558

On some peculiar modifications of the Force of Cohesion, with reference to the forms and structure of Clouds, Films and Membranes. By William Addison, Esq. F.L.S. 560

On the formation or secretion of Alkaline and Earthy Bodies by Animals. By Robert Rigg, Esq. F.R.S. 560

An Account of the Observation of the total Eclipse of the Sun on the 21st of December 1843. By Lieutenant J. O. E. Ludlow, E.I.C. Engineers, Superintendent of the Magnetic Observatory at Madras 560

On the Barometrical Variation as affected by the Moon's Declination. By Luke Howard, Esq. F.R.S. 560

Contributions to the Chemistry of the Urine; on the variations in the Alkaline and Earthy Phosphates in the healthy state, and on the Alkalescence of the Urine from fixed Alkali. By Henry Bence Jones, M.A. Cantab., Licentiate of the Royal College of Physicians 561

On the Nerves of the Uterus. By Thomas S. Beck, Esq. 562

On a Peculiar Source of Deterioration of the Magnetic Powers of Steel Bars. By William Sturgeon, Esq. 562

An Account of a Protracting Pocket Sextant. By Colonel Bainbridge 563

Observations on the Growth and Development of the Epidermis. By Erasmus Wilson, Esq. F.R.S., Lecturer on Anatomy and Physiology in the Middlesex Hospital 563

On the Temperature of Man. By John Davy, M.D. F.R.S. L. & E. 564

On Ozone. By C. F. Schœnbein, Professor of Chemistry at Basle, in a letter to Michael Faraday, Esq. D.C.L. F.R.S. 565

On the Theory of Vision, in a letter to S. Hunter Christie, Esq. Sec. R.S. By William Ford Stevenson, Esq. F.R.S. 565

On the Compounds of Tin and Iodine. By Thomas H. Henry, Esq.. 565

Supplement to a Paper "On the Nervous Ganglia of the Uterus." By Robert Lee, M.D. F.R.S., Fellow of the Royal College of Physicians 566

Experimental Researches in Electricity. By Michael Faraday, Esq. D.C.L. F.R.S. &c. Nineteenth Series. Section 25: On the Magnetization of Light, and the Illumination of Magnetic Lines of Force 567

On the Action of the Rays of the Spectrum on Vegetable Juices, being an Extract from a Letter by Mrs. M. Somerville to Sir John F. W. Herschel, Bart., dated Rome, September 20, 1845 569

1846.

Experimental Researches in Electricity. By Michael Faraday, Esq. D.C.L. F.R.S. &c. Twentieth Series. Section 26: On New Magnetic Actions; and on the Magnetic Condition of all Matter ...*page* 592

On the Viscous Theory of Glacier Motion. By James D. Forbes, Esq. F.R.S. &c. Part II. An attempt to establish by observation the Plasticity of Glacier Ice 595

An Account of the Southern Magnetic Surveying Expedition. By Lieut. H. Clerk, R.A., in a letter to Lieut.-Colonel Sabine, R.A. F.R.S. 596

On the Supra-renal, Thymus and Thyroid Bodies. By John Goodsir, Esq. 596

On the Use of the Barometric Thermometer for the determination of Relative Heights. By James R. Christie, Esq. 597

On the Decomposition and Analysis of the Compounds of Ammonia and Cyanogen. By Robert Smith, Esq. Ph.D. 599

On a point connected with the dispute about the invention of Fluxions. By Augustus De Morgan, Esq. M.A. F.R.A.S. &c. 599

On the Secretory Apparatus and Function of the Liver. By C. Handfield Jones, M.D. 600

An Account of some Experiments on the Electro-Culture of Farm Crops. By Mr. William Sturgeon 600

On the Comet of 1844–45. By John Collingwood Haile, Esq. 600

A Practical Extension of the application of the Law of Mortality announced by B. Gompertz, Esq., in the Philosophical Transactions for 1823. By A. M. Drach, Esq. 601

On Spontaneous Nitrification. By C. F. Schœnbein, Professor of Chemistry in the University of Bâle..... 601

On the Process of Etching, or Engraving, by means of Voltaic Electricity. By James H. Pring, M.D..... 601

On the Mechanism of Respiration. By Francis Sibson..... 601

Illustrations of the Viscous Theory of Glaciers. By James David Forbes, Esq. F.R.S. &c. Part III..... 603

On the Physics of Media that are composed of free and perfectly elastic Molecules in a state of Motion. By J. J. Waterston, Esq... 604

On the Blow-hole of the Porpoise. By Francis Sibson, Esq. 604

On Motion in the Lumbar Division of the Spine in Birds. By George Oakley Fleming, M.D. F.L.S. 605

Investigation of the Power consumed in overcoming the Inertia of Railway Trains, and of the Resistance of the Air to the motion of Railway Trains at high velocities. By P. W. Barlow, Esq. F.R.S. M.I.C.E. 606

On the Muscularity of the Iris. By Professor Maunoir, of Geneva... 607

Contributions to the Chemistry of the Urine.—Part II. On the Variations in the Alkaline and Earthy Phosphates in Disease. By Henry Bence Jones, M.D., Fellow of the Royal College of Physicians..... 608

On the effects produced by Poisonous Fish on the Human Frame. By Sir William Burnett, M.D. K.C.H., Vice-President of the Royal Society ..... *page* 609

Further Researches on the Nervous System of the Uterus. By Robert Lee, M.D. F.R.S., Fellow of the Royal College of Physicians..... 609

History of the Mace given to the Royal Society by King Charles the Second. By Charles Richard Weld, Esq., Barrister at Law, Assistant Secretary and Librarian to the Royal Society 611

On the Anatomy and Physiology of the Vascular Fringes in Joints, and the Sheaths of Tendons. By George Rainey, Esq. M.R.C.S... 621

Description of a Process for extracting the Palladium which exists in combination with the Gold of the Gongosocho and other Mines in the Brazils. By Percival N. Johnson, Esq., in a letter to the President 622

Contributions to Terrestrial Magnetism.—No. VII. By Lieut.-Colonel Sabine, R.A. For. Sec. R.S. 622

An Account of the desquamation and change of colour in a Negro of Upper Guinea, West Africa. By the Rev. Thomas S. Savage, M.D., Corr. Member of the Boston Natural History Society, &c... 623

On the Physiology of the Human Voice. By John Bishop, Esq. F.R.S. 624

The Electric Fluid. By W. F. Stevenson, Esq. F.R.S. 625

Observations of the Heights of the Thermometer and Barometer made at Lenham Lodge, near Maidstone, Kent, during the first nine days of the month of June 1846. By George Hunsley Fielding, M.D. F.R.S. 625

On the relative dynamic value of the Degrees of the Compass; and on the Cause of the Needle resting in the Magnetic Meridian. By Sir Graves C. Haughton, K.H. M.A. F.R.S., Foreign Associate of the Institute of France 626

Remarks on the Extractive Material of Urine, and on the Excretion of Sulphur and Phosphorus by the Kidneys in an unoxidized state. By Edmund Ronalds, Ph.D., Giessen 626

On some peculiarities of Fœtal Digestion. By George Robinson, M.D..... 626

Extracts of Letters from Captain Williams, first Assistant to the Commissioner of Arracan, and from Ensign Haukeu and Mr. Howe, Marine Assistant Commissioner, giving details of a curious phenomenon seen at sea off Kyook Phyoo..... 627

On the Fossil Remains of the soft parts of Foraminifera discovered in the Chalk and Flint of the South-east of England. By Gideon Algernon Mantell, Esq. LL.D. F.R.S..... 627

Microscopic Observations on the so-called Vesicular Vapours of Water as existing in the Vapours of Steam, and in Clouds, &c. By A. Waller, M.D. 628

Experiments relative to Animal Temperature, showing that there must be some source of animal heat besides the combustion of the Carbon and the Hydrogen contained in the Food of Animals. By Robert Rigg, Esq. F.R.S. 628

Electro-Physiological Researches.—Fourth Memoir. On the Physiological Action of the Electric Current. By Carlo Matteucci....*page* 629

On Phlogiston and the Decomposition of Water. By W. F. Stevenson, Esq. F.R.S. 629

Suggestion intended to confirm Franklin's Theory of Electro-statics, by explaining the phenomena of Repulsion between bodies negatively electric. By James A. Smith, Esq. 630

On Sir Isaac Newton's Method of finding the Limits of the Roots of Equations. By Herbert Panmure Ribton, Esq. 630

Description of a Method of Registering Magnetic Variations. By Charles Brooke, Esq. M.B. 630

On the Automatic Registration of Magnetometers and other Meteorological Instruments, by Photography. By Charles Brooke, M.B. F.R.C.S.E. 657

On certain Phenomena of Voltaic Ignition, and on the Decomposition of Water into its constituent Gases by heat. By W. R. Grove, Esq. M.A. F.R.S. 657

Researches on Physical Geology.—Part I. The Figure and Primitive Formation of the Earth. By Henry Hennessy, Esq. 659

1847.

Quelques Recherches sur l'Arc Voltaique; et sur l'influence qu'exerce le Magnétisme, soit sur cet Arc, soit sur les Corps qui transmettent les Courants Electriques Discontinus. By M. Auguste De la Rive, Foreign Member of the Royal Society, Professor in the Academy of Geneva, Corresponding Member of the Academy of Sciences of Paris, &c. 659

On the Ganglia and Nerves of the Virgin Uterus. By Robert Lee, M.D. F.R.S. &c. 661

On a new and practical form of Voltaic Battery of the highest powers, in which Potassium forms the positive element. By John Goodman, Esq. 661

On Photographic Self-registering Meteorological and Magnetical Instruments. By Francis Ronalds, Esq. F.R.S. &c. 662

On the Lunar Atmospheric Tide at St. Helena. By Lieut.-Colonel Edward Sabine, R.A. For. Sec. R.S. 663

On the Amount of the Radiation of Heat, at night, from the Earth, and from various Bodies placed on or near the surface of the Earth. By James Glaisher, Esq. 663

On the Diurnal Variation of the Magnetic Declination at St. Helena. By Lieut.-Colonel Edward Sabine, R.A. For. Sec. R.S. 664

On certain Properties of Prime Numbers. By the Right Hon. Sir Frederick Pollock, M.A. F.R.S., Lord Chief Baron of the Exchequer, &c. 664

On the reabsorption of the Mixed Gases in a Voltameter. By Professor M. H. Jacobi, in a letter to Michael Faraday, Esq., F.R.S. 667

Researches into the effects of certain Physical and Chemical Agents on the Nervous System. By Marshall Hall, M.D. F.R.S. &c. 667

On the cause of the discrepancies observed by Mr. Baily with the Cavendish Apparatus for determining the Mean Density of the Earth. By George Whitehurst Hearn, Esq., of the Royal Military College, Sandhurst ..... *page* 668

Researches to determine the Number of Species and the Mode of Development of the British Triton. By J. Higginbottom, Esq. F.R.C.S. 669

On the Proper Motion of the Solar System. By Thomas Galloway, Esq. A.M. F.R.S. 670

On a new substance occurring in the Urine of a Patient with Mollities Ossium. By Henry Bence Jones, M.D. F.R.S., Physician to St. George's Hospital..... 673

On Carbonic Acid as a Solvent in the process of Vegetation. By John Davy, M.D. F.R.S. 673

An Account of the Hurricane of the 10th of October, 1846, at the Havana, contained in a Despatch addressed to Viscount Palmerston by Her Majesty's Commissioners at the Havana, dated the 24th of February, 1847 674

Researches into the effects of certain Physical and Chemical Agents on the Nervous System. By Marshall Hall, M.D. F.R.S. &c..... 674

On the Nervous System of the Heart. By Robert Lee, M.D. F.R.S. 675

On a Function of the Red Corpuscles of the Blood, and on the Process of Arterialization. By George Owen Rees, M.D. F.R.S. &c. 677

Electro-Physiological Researches, 5th, 6th and 7th Series. By Carlo Matteucci, Professor in the University of Pisa 678

On different properties of Solar Radiation, producing or preventing a deposit of Mercury on Silver Plates coated with Iodine, or its compounds with Bromine or Chlorine, modified by coloured glass media and the vapours of the atmosphere. By A. C. Claudet..... 679

On the Value of Absolute Alcohol in Spirits of different Specific Gravities. By George Fownes, Esq. F.R.S., Professor of Practical Chemistry in University College, London 682

On the existence of alternating diurnal Currents of Electricity at the Terrestrial Surface, &c., and their connection with the Diurnal Variation of the Horizontal Magnetic Needle. By W. H. Barlow, Esq. M.I.C.E..... 682

On the Direction assumed by Plants during their growth. By Professor Macaire, of Geneva 684

On the Solution of Linear Differential Equations. By Charles James Hargreave, Esq. B.L. F.R.S., Professor of Jurisprudence in University College, London..... 687

Researches on the Function of the Intercostal Muscles and on the Respiratory Movements, with some remarks on Muscular Power, in Man. By John Hutchinson, M.R.C.S. 691

On the Structure and Development of the Liver. By C. Handfield Jones, M.B. Cantab. 693

Postscript to Mr. W. H. Barlow's paper on Alternating Diurnal Currents of Electricity at the Terrestrial Surface 727

Magnetical experiments on board H.M. Iron Steam-Vessel 'Bloodhound.' By Captain Edward Johnson, R.N. F.R.S. 727

Thirteenth Series of Tide Researches. By the Rev. William Whewell, B.D. F.R.S. .....*page* 728

1848.

On Terrestrial Magnetism. By William A. Norton, A.M. M.A.P.S., Professor of Mathematics and Natural Philosophy in Delaware College, United States of America 730

On the Disruptive Discharge of accumulated Electricity, and the Proximate Cause of Lightning. By Isham Baggs, Esq. 731

On the Heat disengaged during Metallic Substitutions. By Thomas Andrews, M.D. M.R.I.A., Vice-President of Queen's College, Belfast, &c. 732

On Galvanic Currents existing in the Blood. By James Newton Heale, Esq., Licentiate of the Royal College of Physicians, and Fellow of the Royal College of Surgeons of England 732

Examination of the Proximate Principles of the Lichens. By John Stenhouse, Esq. Ph.D. 735

On a Formula for the Elastic Force of Vapour at different Temperatures. By Captain Shortrede 738

On the Moist-Bulb Problem. By Captain Shortrede 740

Experiments on the influence of Magnetism on Polarized Light. By Professor Carlo Matteucci 741

On the Corrections necessary to be applied to Meteorological Observations made at particular periods, in order to deduce from them Monthly Means. By James Glaisher, Esq., of the Royal Observatory 743

Report of Experiments made on the Tides in the Irish Sea; on the similarity of the Tidal phenomena of the Irish and English Channels; and on the importance of extending the experiments round the Land's-End and up the English Channel. Embodied in a letter to the Hydrographer, by Captain F. W. Beechey, R.N. F.R.S. 743

Observations on some Belemnites and other fossil remains of Cephalopoda, discovered by Mr. Reginald Neville Mantell, C.E., in the Oxford Clay, near Trowbridge in Wiltshire. By Gideon Algernon Mantell, Esq. LL.D. F.R.S., Vice-President of the Geological Society 746

Chemical Researches on the Nature of Wax. By Benjamin Collins Brodie, Esq. 748

A statement of the working of the Compasses on board the Honorable East India Company's Iron Steamer Pluto, from September 1841, on her passage from England to China, and during her service in those seas, until her arrival at Calcutta in January 1843. By John Tudor, Commander R.N. 749

Practical Remarks on Annealing Flint-Glass. By Apsley Pellatt, Esq., of the Falcon Glass Works, Holland Street 750

Determinations of the Magnetic Inclination and Force in the British Provinces of Nova Scotia and New Brunswick in the summer of 1847. By Professor George W. Keely, of Waterville College, Maine, United States 751

Minute structure of the Organ of Taste in Vertebrate Animals. Part I. By Augustus Waller, M.D.....*page* 751

The Brain the sole centre of the Human Nervous System. By Edwin Lee, Esq..... 753

On the Protection of Iron from Oxidation and from becoming foul when it is exposed to the action of sea and other waters. By Mr. William John Hay 754

On the Chemical Nature of a Wax from China. By Benjamin Collins Brodie, Esq. 754

On a new case of the Interference of Light. By the Rev. Baden Powell, M.A. F.R.S. &c., Savilian Professor of Geometry in the University of Oxford 756

On the Meteorology of the Lake District of Cumberland and Westmoreland. By John Fletcher Miller, Esq..... 757

On the structure of the Jaws and Teeth of the Iguanodon. By Gideon Algernon Mantell, Esq. LL.D., F.R.S. Vice-President of the Geological Society, &c..... 757

An Account of some Observations made on the Depth of Rain which falls in the same Localities at different altitudes in the hilly districts of Lancashire, Cheshire and Derbyshire. By S. C. Homersham, C.E. 759

Microscopical examination of the contents of the Hepatic Ducts. By Thomas Wharton Jones, Esq. F.R.S. 760

Researches on the Function of the Intercostal Muscles, and on the Respiratory Movements, with some remarks upon Muscular Power in Man. By Dr. John Hutchinson..... 760

Attempt to apply instrumental measurement to the Zodiacal Light. By Prof. C. Piazzi Smyth 761

On the Chemical Nature of Wax.—Part III. On Myricine. By B. C. Brodie, Esq. 767

An account of Astronomical Observations proposed to be made in South America. By S. M. Gillies, in an extract of a letter to Lieut.-Col. Sabine, R.A. For. Sec. R.S..... 768

Experimental Researches in Electricity.—Twenty-second Series. § 28. On the Crystalline Polarity of Bismuth and other bodies, and on its relation to the magnetic form of force. By Michael Faraday, Esq. D.C.L. F.R.S., Fullerian Professor of Chemistry at the Royal Institution, &c. 780

On the effect of surrounding Media on Voltaic Ignition. By W. R. Grove, Esq. M.A. F.R.S. 783

1849.

Contributions to the Physiology of the Alimentary Canal. By W. Brinton, Esq. M.B. 784

On the Determination of the Difference of Longitude, by means of the Magnetic Telegraph. By Elias Loomis, Esq., in a letter to Lieut.-Col. Sabine, R.A. For. Sec. R.S. 787

On the peculiar cooling effects of Hydrogen and its compounds in cases of Voltaic Ignition. By W. F. Stevenson, Esq. F.R.S. *page* 789

Postscript to a paper "On the Ganglia and Nerves of the Heart." By Robert Lee, M.D. F.R.S. 789

On the Aurora Borealis which occurred on the evening of Friday, the 17th of November, 1848. By Mr. R. Smith, Blackford, Perthshire. 790

On the Development and Homologies of the Carapace and Plastron of the Chelonian Reptiles. By Professor Owen, F.R.S. 792

Some remarks on a paper entitled "'On the Depth of Rain which falls in the same localities at different Altitudes in the Hilly districts of Lancashire, Cheshire, &c., by S. C. Homersham, C.E." By John Fletcher Miller, Esq. 794

Supplement to a paper "On the Theory of certain Bands seen in the Spectrum." By G. G. Stokes, Esq. M.A., Fellow of Pembroke College, Cambridge 795

On the Chemistry of the Urine; in three Parts. By H. Bence Jones, M.D. M.A. F.R.S. 796

On the application of the Theory of Elliptic Functions to the Rotation of a Rigid Body round a Fixed Point. By James Booth, LL.D. F.R.S. 797

Description of an Infusory Animalcule allied to the genus Notommata of Ehrenberg, hitherto undescribed. By John Dalrymple, Esq. F.R.C.S. 800

On the Integration of Linear Differential Equations. By the Rev. Brice Bronwin 802

Minute Examination of the Organ of Taste in Man. By Augustus Waller, M.D. 803

Additional Observations on the Osteology of the Iguanodon and Hylæosaurus. By Gideon Algernon Mantell, Esq. LL.D. F.R.S. V.P.G.S. &c. 804

Researches in Physical Geology.—Part II. By Henry Hennessy, Esq. 807

An Account of the Aurora Borealis of the 17th of November 1848. By the Rev. Charles F. Watkins. 810

Examination of the Proximate Principles of some of the Lichens.—Part II. By John Stenhouse, Esq. F.R.S. 811

General Methods in Analysis, for the resolution of Linear Equations in Finite Differences and Linear Differential Equations. By Charles James Hargreave, Esq. LL.B. F.R.S. &c. 814

On the Meteorology of the Lake District of Cumberland and Westmoreland. By John Fletcher Miller, Esq. 816

A Report upon further Observations of the Tides of the English Channel made by order of the Lords Commissioners of the Admiralty in 1848, with remarks upon the Laws by which the Tidal Streams of the English Channel and German Ocean appear to be governed. By Captain F. W. Beechey, R.N. F.R.S. 817

On the Reduction of the Thermometrical Observations made at the Apartments of the Royal Society from the year 1774 to 1781, and from the year 1787 to 1843. By James Glaisher, Esq. of the Royal Observatory, Greenwich 820

Remarks on M. de la Rive's Theory for the Physical Explanation of the Causes which produce the Diurnal Variation of the Magnetic Declination, in a letter to S. Hunter Christie, Esq. Sec. R.S., from Lieut.-Col. Sabine, For. Sec. R.S. ..... *page* 821

An appendix to a paper "On the Variations of the Acidity of the Urine in the State of Health"—"On the Influence of Medicines on the Acidity of the Urine." By Henry Bence Jones, M.D. M.A. F.R.S. &c. 825

On the direct production of Heat by Magnetism. By W. R. Grove, Esq. M.A. V.P.R.S. &c. 826

On Carbonate of Lime as an ingredient of Sea-water. By John Davy, M.D. F.R.S. Lond. and Ed., Inspector-General of Army-Hospitals, &c. 828

On the Universal Law of Attraction, including that of Gravitation, as a particular case of approximation deducible from the principle that equal and similar particles of matter move similarly, relatively to each other. By John Kinnersley Smythies, Esq. 831

On the Anatomy and Affinities of the Family of Medusæ. By Henry Huxley, Esq. 832

Memoir to accompany a Map of the Magnetic Variation for 1840 in the Atlantic Ocean between the parallels of 60° N. and 60° S. latitude, being Contributions to Terrestrial Magnetism, No. 9. By Lieut.-Colonel Edward Sabine, R.A. For. Sec. R.S. 835

On the Microscopic Structure of the Scales and Dermal Teeth of some Ganoid and Placoid Fish. By W. C. Williamson, Esq..... 837

On the Mechanical Equivalent of Heat. By J. P. Joule, Cor. Associate R. Acad. Sciences, Turin, &c. 839

On the Nitrogenous Principles of Vegetables as the sources of artificial Alkaloids. By John Stenhouse, F.R.S..... 840

On the Development and Varieties of the great anterior veins in Man and Mammalia. By John Marshall, Esq. 842

A Mathematical Theory of Magnetism. By William Thomson, M.A. F.R.S.E., Fellow of St. Peter's College, Cambridge, and Professor of Natural Philosophy in the University of Glasgow 845

On the Nitroprussides, a new Class of Salts. By Dr. Lyon Playfair, F.R.S. F.C.S. 846

On the Structure of the Dental Tissues of Marsupial Animals, and more especially of the Enamel. By John Tomes, Esq. 847

On the Motion of Gases.—Part II. By Thomas Graham, F.R.S. &c. 848

On the Automatic Registration of Magnetometers and Meteorological Instruments by Photography.—No. III. By Charles Brooke, M.B. F.R.S. 851

On certain Properties of the Arithmetical Series whose ultimate differences are constant. By Sir Frederick Pollock, Lord Chief-Baron of the Exchequer, F.R.S. &c. 852

On the Analysis of Numerical Equations. By J. R. Young, Esq., Professor of Mathematics in Belfast College 854

On some Phenomena and Motions of Metals under the influence of Magnetic Force. By William Sykes Ward, Esq. 855

On the Diffusion of Liquids. By Professor Graham, F.R.S. 897

1850.

Experiments and Observations upon the Properties of Light. By Lord Brougham, F.R.S. &c. ..... *page* 900

Electro-Physiological Researches.—7th Series. By Prof. Carlo Matteucci 902

Researches respecting the Molecular Constitution of the Volatile Organic Bases. By Dr. A. W. Hofmann 904

Observations on the Freezing of the Albumen of Eggs. By James Paget, Esq., Professor of Anatomy and Surgery to the Royal College of Surgeons 906

On the establishment of a Central Physical Observatory at St. Petersburg, a letter from M. Kupffer to Lieut.-Col. Sabine, For. Sec. R.S. 907

A Letter from Captain C. M. Elliot, Madras Engineers, to Lieut.-Col. Sabine, For. Sec. R.S., transmitted through the Court of Directors of the East India Company 908

On the gaseous transformation of Water, by means of a pile in two separate compartments having no other electric communication between them besides conducting wires of copper, and giving, in the one oxygen alone, and hydrogen alone in the other. By M. Daniel Paret 911

An account of a remarkable Aurora Borealis seen at Montreal on the 13th of August 1849. By Mr. Thomas McGinn 911

On the Development of the Retina and Optic Nerve, and of the Membranous Labyrinth and Auditory Nerve. By Henry Gray, Esq. M.R.C.S. 912

Tide Researches.—Fourteenth Series. On the Results of continued Tide Observations at several places on the British Coasts. By the Rev. W. Whewell, D.D. F.R.S. &c 915

On the development and homologies of the Molar Teeth of the Wart-Hogs (Phacochærus), with illustrations of a System of Notation for the Teeth in the Class Mammalia. By Richard Owen, Esq. F.R.S. &c. 916

Description of the Hydrostatic Log. By the Rev. E. L. Berthon, M.A. 919

Supplementary Observations on the Structure of the Belemnite and Belemnoteuthis. By Gideon Algernon Mantell, Esq. LL.D. F.R.S., Vice-President of the Geological Society, &c. 920

On the Pelorosaurus; an undescribed gigantic terrestrial reptile, whose remains are associated with those of the Iguanodon and other Saurians, in the Strata of Tilgate Forest. By Gideon Algernon Mantell, Esq. LL.D. F.R.S., Vice-President of the Geological Society, &c. 921

On the Extension of the Principle of Fermat's Theorem of the Polygonal Numbers to the higher orders of series whose ultimate differences are constant. With a new Theorem proposed, applicable to all the Orders. By Sir Frederick Pollock, Lord Chief-Baron, F.R.S. 922

Experiments on the section of the Glossopharyngeal and Hypoglossal Nerves of the Frog, and Observations of the alterations produced thereby in the Structure of their primitive fibres. By Augustus Waller, M.D. 924

Sequel to a Paper on the reduction of the Thermometrical Observations made at the Apartments of the Royal Society, with an Appendix. By James Glaisher, Esq. F.R.S. .....*page* 925

On the Communications between the Tympanum and Palate in the Crocodilian Reptiles. By Richard Owen, Esq. F.R.S. &c 927

On the application of Carbon deposited in Gas Retorts as the negative plate in the Nitric Acid Voltaic Battery. By Christopher Leefe Dresser, Esq. 928

Experimental Researches in Electricity.—Twenty-third Series. § 29. On the Polar or other condition of Diamagnetic Bodies. By Michael Faraday, Esq. F.R.S. &c. 929

Contributions to the Chemistry of the Urine.—Paper IV. On so-called Chylous Urine. By H. Bence Jones, M.D. A.M. F.R.S. &c. 930

Letter from Mr. Richardson to Viscount Palmerston on the fall of aërolites at Tunis 932

Discussion of Meteorological Observations taken in India at various heights. By Lieut.-Colonel Sykes, F.R.S. &c. 933

On the Structure and Use of the Ligamentum rotundum Uteri, with some observations upon the change which takes place in the structure of the Uterus during Utero-gestation. By G. Rainey, Esq. M.R.C.S.E., Demonstrator of Anatomy, St. Thomas's Hospital ... 936

On the Solution of Linear Differential Equations. By the Rev. Brice Bronwin, M.A. 937

On the Oils produced by the action of Sulphuric Acid upon various classes of Vegetables. By John Stenhouse, Esq. F.R.S. 939

On the Temperature of Steam and its corresponding Pressure, By John Curr, Esq. 941

On the means adopted in the British Colonial Magnetic Observatories for determining the absolute values, secular change, and annular variation of the Magnetic Force. By Lieut.-Col. Edward Sabine, R.A. For. Sec. R.S. 942

On the Meteorology of England during the years 1847, 1848 and 1849. By James Glaisher, Esq. F.R.S. 945

On the Temperature of Man within the Tropics. By John Davy, M.D. F.R.S. &c. 946

On the Geographical Distribution of the *Bulimi*, a group of terrestrial *Mollusca*; and on the modification of their calcifying functions according to the local physical conditions in which the species occur. By Lovell Reeve, Esq. F.L.S. 947

On the influence of Physical Agents on the development of the Tadpole, of the Triton and the Frog. By John Higginbottom, Esq. 949

On the Algebraic Expression of the Number of Partitions of which a given number is susceptible. By Sir John F. W. Herschel, Bart. K.H. F.R.S. &c..... 950

On the original Model of the Safety-Lamp of Sir Humphry Davy. By C. R. Weld, Esq. 950

On the Structure of the Dental Tissues of Rodentia. By John Tomes, Surgeon-Dentist to Middlesex Hospital 951

On the Meteorology of the Lake District of Cumberland and Westmoreland, with a continuation of the results of experiments on the fall of Rain at various heights, up to 3166 feet above the Sea-Level. By J. F. Miller, Esq. F.R.A.S. ..... *page* 952

On the relation of the Air and Evaporation Temperatures to the Temperature of the Dew-Point, as determined by Mr. Glaisher's Hygrometrical Tables founded on the factors deduced from the Six-hourly observations made at the Royal Observatory, Greenwich. By J. F. Miller, Esq. F.R.A.S. 953

On Dynamical Stability, and on the Oscillations of Floating Bodies. By the Rev. Henry Moseley, M.A. F.R.S., Corresponding Member of the Institute of France 954

Observations on 287 Thunder-storms made at Highfield House, near Nottingham, during the last nine years. By Edward Lowe, Esq. F.R.A.S. 957

On a Dorsal dermal Spine of the Hylæosaurus recently discovered in the Strata of Tilgate Forest. By Gideon Algernon Mantell, Esq. LL.D. F.R.S. &c. 957

On the Variations of the Sulphates and Phosphates in the Urine in Disease. By Henry Bence Jones, M.D. F.R.S. 958

Second Appendix to a paper on the Variations of the Acidity of the Urine in Health. By Henry Bence Jones, M.D. F.R.S. 959

On the Temperature of Steam, and its corresponding Pressure. By John Curr, Esq. 960

An Experimental Inquiry into the strength of Wrought Iron Plates and riveted Joints as applied to Ship-building. By William Fairbairn, Esq. F.R.S. 960

On extraordinary Oscillations of the Sea; with an account of some Observations in Mount's Bay. By Richard Edmonds, Jun. 962

Observations on the Nebulæ. By the Earl of Rosse, Pres. R.S. &c.. 962

Electro-Physiological Researches.—Ninth Series. By Prof. Carlo Matteucci 966

On the Condition of certain Elements at the moment of Chemical Change. By B. C. Brodie, Esq. F.R.S. 967

The Calling of the Sea. By Richard Edmonds, Jun. 968

On the Structure of the Membrana Tympani in the Human Ear. By Joseph Toynbee, F.R.S. &c. &c. 968

Investigations into the Structure and Development of the Scales and Bones of Fishes. By W. C. Williamson, Esq. 969

On the Impregnation of the Ovum in the Amphibia. By George Newport, F.R.S. F.L.S. &c. 971

A Mathematical Theory of Magnetism. By William Thomson, M.A. F.R.S.E., Fellow of St. Peter's College, Cambridge, and Professor of Natural Philosophy in the University of Glasgow 975

Les Causes du Magnétisme terrestre prouvées. Par M. Pierre Béron. 978

On the Physiology and Pathology of Phosphate and Oxalate of Lime, and their relation to the formation of Cells. By William Beneke, M.D. 979

Supplementary Observations on the Diffusion of Liquids. By Thomas Graham, Esq. F.R.S. F.C.S. ..... *page* 980

On the Mutual Relations of the Vital and Physical Forces. By William B. Carpenter, M.D. F.R.S. &c. 989

Letter from Lieut. Gillies, U.S.N., to Lieut.-Col. Sabine, R.A., For. Sec. R.S. 990

Experimental Researches in Electricity.—Twenty-fourth Series. On the possible relation of Gravity to Electricity. By Michael Faraday, Esq. D.C.L. F.R.S. &c. 994

Experimental Researches in Electricity.—Twenty-fifth Series. On the Magnetic and Diamagnetic Condition of Bodies. By Michael Faraday, Esq. D.C.L. F.R.S. &c. 995

Experimental Researches in Electricity.—Twenty-sixth Series. On Magnetic Conducting Power and Atmospheric Magnetism. By Michael Faraday, Esq. D.C.L. F.R.S. &c. 998

Experimental Researches in Electricity.—Twenty-seventh Series. Atmospheric Magnetism, continued. By Michael Faraday, Esq. D.C.L. F.R.S. &c. 1000